Moving Toward Sustainability 2002:

An Annual Progress Report on the City of Seattle's Environmental Action Agenda

Seattle Office of Sustainability & Environment
April 2003

What's in the name?

What is "sustainability," and how do we know whether we are moving toward it? Sustainability, defined simply but sufficiently as the long-term economic, ecological and social health and vitality of our community, is the fundamental purpose of city government. The City of Seattle's commitment to sustainable development dates back at least to 1992, when the Mayor and City Council unanimously endorsed 11 guiding principles for environmental management, including a pledge to "meet our current needs without compromising the ability of future generations to meet their needs."

So, 10 years later, how are we doing? Is Seattle getting healthier economically, environmentally, and socially? This report sheds some light on these questions, but focuses primarily on environmental sustainability, and in particular City government's efforts to develop, implement, and promote resource-efficient and environmentally responsible practices.

For additional indicators of the region's environmental, economic, and social health, see the following: Communities Count 2002: A Biennial Report on the Strength of King County's Communities, Public Health Seattle-King County; Monitoring Our Progress: Seattle's Comprehensive Plan, City of Seattle Department of Design, Construction & Land Use; 2002 Benchmark Report, Metropolitan King County; and This Place on Earth 2002: Measuring What Matters, Northwest Environment Watch.

Your City of Seattle Government

Over 10,000 workers

Annual budget of nearly $3 billion

Average base pay for employees $52,800

Owns and operates electric, water, solid waste, and drainage utilities

City-owned water utility supplies over 1.3M people in Seattle-King County

City-owned electric utility serves over 355,600 residential, commercial, industrial, and governmental customers

Maintains and operates over 3,000 vehicles

Maintains 400 parks and open areas representing 10 percent of city's land area

Owns or leases over 800 facilities

Owns 7,000 in-city acres and 128,000 acres outside City (hydroelectric facilities, watershed)

Maintains over 4,000 lane miles of roads and 142 bridges

Administers 2,000 miles of sidewalks, 75 miles of signed bike paths and 22 miles of streets with bike lanes

The results described in these pages are the accomplishments of dozens of talented, creative, and committed employees working in several City departments. Congratulations and thanks to these champions. Without them, there would be no numbers to crunch, no targets to track, and no report to compile.

A Message From Mayor Nickels

April 2003

A year ago I launched my Environmental Action Agenda (EAA) to protect and restore our urban environment and make City government more environmentally responsible.

We've made great progress. We've met, or are on track to meet, almost all of our goals. For those not met, we've adjusted our actions to do a better job.

Our efforts have been recognized - we received the Governor's Award for Pollution Prevention and Sustainable Practices and the U.S. EPA's Clean Air Excellence Award.

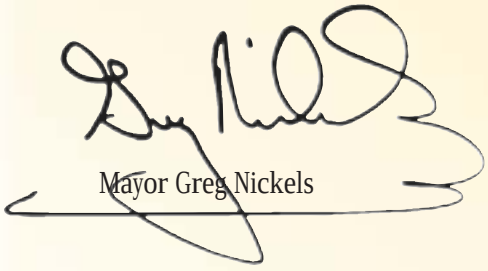
But, more important than making headlines, we made headway. Some examples:

- Switched our diesel vehicles to a cleaner fuel and began installing advanced pollution control equipment. These actions will reduce toxic emissions from City vehicles by 50 to 90 percent.
- Designed and constructed City buildings using aggressive new sustainable building standards to reduce environmental impacts.
- Promoted "car-smart communities" that reduce vehicle use in our neighborhoods - and the pollution that comes with it.

These accomplishments, and many others, are described in this report. So are the environmental challenges still left. We'll continue working to meet those challenges.

I thank City employees, citizens, community groups and businesses who work hard to improve environmental quality in our neighborhoods, and make a difference in people's lives. Your work will keep Seattle one of the world's healthiest and most livable cities.

Sincerely,



Mayor Greg Nickels

Executive Summary

The City's Environmental Action Agenda (EAA), adopted in April 2002, established goals, targets, and next steps for continuously improving the City's performance in three areas: Lean Green City Government, Healthy Urban Environments, and Smart Mobility. This report charts our progress implementing the Agenda and meeting our goals and targets. We made significant progress in all three areas, initiating or completing all of the next steps and meeting most of the targets. Where targets are not being met, we set in motion new strategies and action steps.

Lean Green City Government

- Energy and water use results were mixed, with use decreasing in some City buildings, and increasing in others in 2002 as we stopped curtailment measures implemented during the 2001 drought.
- Fleet fuel use declined by six percent from 2001 levels moving us closer to our five percent reduction target from 1999 use. However, use is two percent higher than in the 1999 baseline year. Further improvement is expected as the City implements its Clean and Green Fleet Action Plan in 2003.
- Fourteen of 22 City construction projects over 5,000 square feet (64 percent) will meet the LEED™ silver rating target for sustainable buildings. The eight buildings that will not meet that standard are branch libraries planned and budgeted prior to adoption of the target.
- Only one of our five largest departments met the target by having an Environmental Management System (EMS) framework in place by the end of 2002. Progress on a departmental EMS was made in two other departments, and two more will initiate EMS planning in 2003.
- Compliance with environmental requirements was mixed. Our target is 100 percent compliance and overall our record remains strong. We were assessed one violation with a fine for a dry-weather overflow in our combined sewer system.

Healthy Urban Environments

- Continued to meet the target of one acre of "breathing room" open space per 100 residents while adding open space in underserved neighborhoods.
- Pesticide use did not meet the target of a sustained 30 percent reduction. To help us meet our goal in the future, we are developing new landscape design and maintenance standards for our grounds and Integrated Pest Management Plans for each of our golf courses.
- Initiated the Urban Forest Management Plan, which will include an assessment of the condition of our urban forest and establish targets for forest canopy quality and quantity.
- Two natural drainage system prototypes were constructed in the Pipers Creek watershed.

Smart Mobility

- The number of employees who drive alone to work continues to drop, however we only met our target of 35 percent fewer employees driving alone compared to 1992 in the downtown area, which represents over 50 percent of our employees.
- The "Way to Go, Seattle" program continues to reduce vehicle trips and miles driven in our communities.
- We improved the efficient use of our street system by optimizing over 200 traffic signals in the last two years.

We completed or initiated all of the next steps identified in the EAA:

Lean Green City Government

- ✔ Develop Green Fleet initiative
- ✔ Reduce pesticide use on City golf courses
- ✔ Increase efficiency of parks' irrigation systems
- ✔ Cut City paper use
- ✔ Transition to flat-screen computer monitors

Healthy Urban Environments

- ✔ Develop Urban Forest Restoration initiative
- ✔ Develop environmental justice action plan
- ✔ Launch Sustainable Infrastructure Initiative
- ✔ Provide environmental stewardship program in community centers
- ✔ Complete "Greening Seattle's Affordable Housing" guide
- ✔ Partner to create a regional Sustainable Design Resource Center

Smart Mobility

- ✔ Partner with Clean Air Agency to develop regional climate protection program
- ✔ Launch next phase of "Way to Go, Seattle" program
- ✔ Enhance City's commute trip reduction efforts
- ✔ Implement an EMS at Seattle Department of Transportation

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Sustaining our urban forest


Reducing City use of pesticides


Protecting and restoring our urban creeks and salmon habitat


Practicing restorative development

Smart Mobility


Encouraging City employees to drive less


Reducing car trips and miles traveled


Reducing travel times by optimizing traffic signals


Improving transportation choices

Key:


Indicator trending in the right direction


Indicator trending in the wrong direction


Mixed results


No significant change


Collecting baseline data, no target yet established

At the same time that urban environmental challenges are growing in size and complexity — here in Seattle and in cities around the world — the resources available to local governments to address these challenges are shrinking. Cities need to be ever more strategic. Seattle's approach is to closely track the environmental conditions we are trying to improve, and steer the City's actions and investments toward key challenges and opportunities.

Causes for concern...

- Compared to 1990, almost a million more people live in the 12 counties that surround Puget Sound, and half of those new arrivals are in the greater Seattle area. How do we manage that growth in a way that protects and enhances the distinctive urban environmental quality and livability that draws people and businesses here in the first place?
- According to a 2002 U.S. Environmental Protection Agency study (confirmed by state Department of Ecology and Puget Sound Clean Air Agency monitoring), levels of toxic air pollution in the central Puget Sound region are among the highest in the country, due in large part to diesel emissions from trucks, buses, and ships.
- Climate change is a global challenge, but the stakes for our coastal and water-dependent region are especially high. For example, researchers at the University of Washington project that our snow pack could diminish by as much as 60 percent by 2050, significantly altering how much water is available — and when — for drinking water supply, hydroelectricity production, and salmon runs.
- The 1999 listing of two species of Puget Sound fish — the chinook salmon and the bull trout— as "threatened" under the federal Endangered Species Act was a loud and clear signal that the health of our river and creek watersheds — and the Puget Sound into which they drain — is in jeopardy. A comprehensive 2002 report by the Seattle Post-Intelligencer detailed the myriad threats to Puget Sound marine mammals, fish, shellfish, and water quality, especially stormwater run-off from yards, roofs, and roads.
- There is increasing evidence that environmental challenges are human health challenges, too. For example, a 2002 study by researchers from the U.S. EPA and Mount Sinai School of Medicine's Center for Children's Health and the Environment concluded that "contamination of human milk is widespread and is the consequence of decades of inadequately controlled pollution of the environment by toxic chemicals."

...and reasons for optimism

- While environmental quality is a regional, national, and even global challenge, City government has a great deal of leverage to improve environmental conditions in and around Seattle. We can *practice* sustainability, by developing and implementing "best practices" in our various roles as a large employer, landowner, developer, consumer, fleet manager, and service provider. And, we can *promote* sustainable practices in the community, by providing information, models, incentives, and technical assistance — and, in some cases, by imposing regulatory requirements.
- Our community is well known for its unique blend of entrepreneurial drive and environmental conscientiousness; we have both the desire and the capacity to turn problems into innovative solutions. Further, we have a proven ability to establish partnerships for a better Seattle among public, private, and nonprofit organizations. For example, in 2002 the City and the Seattle Housing Authority initiated a partnership to create a model of sustainable urban redevelopment in the High Point neighborhood.
- The wave of redevelopment occurring in Seattle, including major components of our transportation system and whole neighborhoods, creates numerous possibilities for putting our leverage, desire, capacity, and partnerships to work for a more sustainable Seattle. These large investments in our future provide huge opportunities to employ new products, approaches, and technologies that better protect (and where possible restore) our urban ecosystems.

About This Report

So what is the City of Seattle doing to confront these challenges and seize these opportunities? In April 2002, Mayor Greg Nickels released his Environmental Action Agenda (EAA), a framework for integrated environmental action and investment by the City. The EAA, which builds on the citywide Environmental Management Program, adopted by the Mayor and City Council in 1999, is a system for making and measuring improvements in both the City's environmental performance and in environmental quality and livability in the City and region. This is an annual report on the City's progress toward implementation of the EAA.

> "These are tough economic times but our physical and economic health, now and into the future, depend on clean air, clean water, and a healthy environment."
>
> *Mayor Greg Nickels, Earth Day 2002*

The Mayor's Environmental Action Agenda includes goals, targets, and action steps in three areas: Lean Green City Government; Healthy Urban Environments; and Smart Mobility. The remainder of this report addresses each of these components, describing progress toward specific goals and targets, key accomplishments in 2001-2002, and remaining challenges and next steps.

What are we trying to accomplish?

As a major landowner, employer, building manager, fleet operator, utility owner and operator, consumer of goods and services, and service provider, the City of Seattle has both the opportunity and the capacity to bring about significant improvements in environmental quality in and around the central Puget Sound region. The goal of the Lean Green City Government component of the Mayor's Environmental Action Agenda is to maximize that leverage by transforming City government into a model of clean, healthy, resource-efficient, and environmentally responsible practices.

For example, as the owner and operator of the region's largest municipally owned water, electric and solid waste utilities, we have the opportunity — and the obligation — to use natural resources wisely and to encourage our customers to do the same. Both City utilities invest millions of dollars annually to offer a range of education, financial and technical assistance programs that have proven conservation and recycling to be the most cost effective and environmentally responsible approaches to meeting the growing demand for water, electricity, and waste disposal.

How are we doing?

Increasing the resource-efficiency of City buildings

Target·Results

As Figure 1 illustrates, the City is meeting its target of reduced energy use in 25 representative City facilities. Most facilities are sustaining the substantial savings achieved during the 2001 energy crunch. In

Figure 1 – Annual Electricity Use in Representative City Buildings

	Average Kilowatt (KWH) hour/Year 1997-2000	Total KWH 2001	Total KWH 2002	2002 % Change vs. Base	2002 % change vs. 2001
Administration					
Alaska Building	2,739,323	2,172,890	2,372,200	-13%	9%
Arctic Building	1,344,348	1,118,705	1,103,598	-18%	-1%
Key Tower	23,244,375	20,444,400	21,514,300	-7%	5%
Municipal	3,027,418	2,593,169	2,488,200	-18%	-4%
Parks Dexter Admin	259,405	266,410	214,200	-17%	-20%
Operation					
Charles Street - Engineering	255,180	213,240	211,560	-17%	-1%
Charles Street - Fleets	953,890	733,420	771,410	-19%	5%
Public Utilities Operations Center	1,747,880	1,597,240	1,633,990	-7%	2%
Public Safety					
Fire Station 10 (Downtown)	722,200	745,070	736,440	2%	-1%
Fire Station 18 (Ballard)	184,740	152,080	152,480	-17%	0%
Fire Station 20 (Interbay)	40,610	41,375	38,121	-6%	-8%
Fire Station 25 (Capitol Hill)	184,123	165,470	173,190	-6%	5%
North Precinct	416,535	389,720	361,790	-13%	-7%
South Precinct	618,720	512,640	485,890	-21%	-5%
Recreation					
Ballard Pool	514,043	514,550	492,750	-4%	-4%
Helene Madison Pool	582,933	555,410	525,100	-10%	-5%
Lower Woodland Field	85,620	65,958	79,212	-7%	20%
Bitter Lake Community Center*	238,153	240,140	254,060	7%	6%
Delridge Community Center	260,705	253,090	256,130	-2%	1%
Hiawatha Community Center	221,293	236,270	230,430	4%	-3%
Miller Community Center*	307,600	305,770	259,390	-16%	-15%
Rainier Community Center	447,815	480,030	435,820	-3%	-9%
Libraries					
Magnolia Library	119,920	128,640	111,200	-7%	-14%
University Library	88,290	96,560	97,960	11%	1%
West Seattle Library	137,967	127,872	125,324	-9%	-2%

* Baseline = 1998-2000

Source: City Light - Energy Management Tracking System (EMTS)

some buildings electricity consumption is down close to 20 percent. In a couple of places, the use of electricity increased. For example, in Key Tower - which alone uses power equivalent to about 2,080 homes - 2002 use went up by about five percent over 2001. The increase likely is due to higher occupancy rates, but is still seven percent below the baseline years.

Water use in City facilities is generally decreasing, as well. During the 2001 drought, most City facilities met or exceeded the City's goal of reducing water use by 10 percent. Community centers and libraries all but eliminated lawn watering, the Charles Street car-wash cut hours in half, and downtown buildings made fixing leaks a priority and eliminated as much sidewalk washing as possible. In 2002, as Figure 2 illustrates, many City facilities maintained these water savings, while for some facilities resuming normal operations resulted in water use increases compared to the drought year.

Key Tower's water use is nearly an order of magnitude greater than any of the other City facilities. In 2002, it used more than 27,000 CCF (20 million gallons of water), about the amount used by 318 Seattle homes in a year, and about 13 percent higher than 2001. The primary reason for the increase is the increased cooling load associated with Key Tower's new data center, although higher occupancy in 2002 also contributed to higher water use.

Highlights

- Began replacing 276 toilets in Key Tower with water-saving models, which will save 2.6 million gallons of water a year and reduce the City's water and sewer bills by $27,000 annually
- Installed energy-efficient lighting in the Seattle Center's Blue Spruce and Pavilion rooms, saving 60,000 kilowatt hours annually — enough to serve about six average Seattle homes
- Implemented water-saving computerized irrigation systems at five parks
- The City's utilities continued to aggressively promote energy and water conservation and recycling by Seattle-area businesses and households, for example:

- Energy conservation programs saved nine average megawatts in 2002, enough to power 7,700 Seattle homes; water conservation programs saved 1.2 million gallons per day, enough to serve 6,900 homes
- Provided incentives for builders to exceed the energy code in nearly 2,000 new residential housing units - an historic high
- Achieved one percent customer participation in the Green Power Program, which funded several projects, including installation of solar panels at Greenwood, Orca, and Columbia elementary schools

Figure 2 - Annual Water Consumption in Representative City Buildings (in CCF*)

	Baseline 1997-2000 Average	2001	2002	2001 % Change vs Base	2002 % Change vs Base
Alaska Building	2,711	2,438	2,300	-10%	-15%
Arctic Building	3,932	2,313	2,347	-41%	-40%
Key Tower	25,195	24,022	27,041	-5%	7%
Bitter Lake Community Center	546	349	410	-36%	-25%
Delridge Community Center	269	328	285	22%	6%
Miller Community Center	2,475	748	671	-70%	-73%
Rainier Community Center	1,553	923	1,183	-41%	-24%
Charles Street - Fleets**	841	412	575	-51%	-32%
Fire Station 10 (Downtown)	2,748	3,912	3,782	42%	38%
Fire Station 18 (Ballard)	402	388	347	-4%	-14%
Fire Station 20 (Interbay)	75	84	78	12%	4%
Magnolia Library	496	319	277	-36%	-44%
UniversityLibrary	376	211	249	-44%	-34%
West Seattle Library	522	165	247	-68%	-53%

*1 CCF - 100 cubic feet of water which equals 748 gallons

Source: Public Utilities WaterBIRD

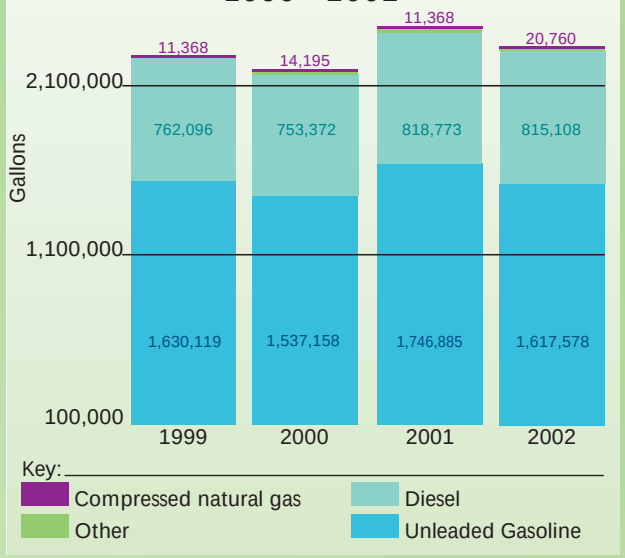
- Implemented the Neighborhood Power Project in the Phinney/Greenwood and Central Area neighborhoods, resulting in estimated energy savings sufficient to power 239 homes
- Included ten community events in the Public Place Event Recycling Program in 2002, recycling more than 25 tons of plastic, glass, aluminum and cardboard
- Residents recycled 72,000 tons of material in 2001, more than 95 percent of households recycle

Reducing pollution from City vehicles

Target·Results

The City made progress toward its target of reducing the fleet's use of fossil fuels by five percent by 2005, compared to a 1999 baseline (see Figure 3). The City's fleet of 3,250 vehicles — including 375 "off-road" heavy equipment vehicles, 1,174 cars, 423 heavy-duty trucks, and 1,278 light-duty trucks, sport utility vehicles, and vans — burned 2,467,807 gallons of diesel, oil, unleaded gasoline, propane, and compressed natural gas in 2002, about six percent less than 2001, but still two percent more than 1999 levels. Diesel consumption is up about seven percent, while use of unleaded gasoline is at about the 1999 level. The City's use of compressed natural gas has increased by more than 80 percent since 1999, but remains less than one percent of the fleet's total fossil fuel consumption.

Figure 3 – Citywide Fleet Fuel Use – 1999 - 2002



Source: Fleet Management, Fleets & Facilities Department

Highlights

- Reduced overall size of City fleet by about 200 vehicles
- Purchased 33 hybrid gas-electric vehicles, which are among the most popular vehicles in the City fleet
- Purchased 10 Segway™ human transporters and conducted a pilot project to determine the costs and benefits of replacing fleet vehicles for various uses (e.g., water meter-reading)
- Continued retrofitting 400 City diesel vehicles with advanced pollution control devices, as part of the regional Diesel Solutions program. Together with last year's conversion of all diesel vehicles to ultra-low sulfur diesel, this program is expected to reduce diesel emissions — a major contributor to toxic air pollution in the Puget Sound air shed — by 50 to 90 percent per vehicle
- Launched the "Take the High Road" pilot program to reduce work-related car trips by employees who do not work in the central business district

Building green

Target·Results

By modeling state-of-the-art approaches to design and construction, the City improves indoor environmental quality for workers and visitors, and environmental quality in the communities in which public buildings are located. And we encourage other institutions, private developers, and homeowners to follow suit.

The City's sustainable building target is to achieve the silver rating of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) rating system in all City construction projects of 5,000 square feet or greater. Fourteen of 22 (64 percent) City projects meeting that threshold are expected to achieve "silver LEED™." See Figure 4. The eight projects not expected to meet the goal are all branch libraries funded through the "Libraries for All" bond measure, passed by voters in 1998 - two years before the City's sustainable building policy was adopted.

Highlights

- Completed the first two "silver LEED™" projects — the Seattle Justice Center and the Seattle Center Fisher Pavilion, totaling 324,000 square feet
- Broke ground on several additional "silver LEED™" projects, including the City Hall and the Central Library
- Continued to develop training and tools to support Sustainable Building Program implementation, including a series of workshops, a newsletter, a web site, and improvements to the Seattle supplement to LEED™
- Increased efforts to promote sustainable building practices by private developers and households, including the following:
  - Under the LEED™ Incentive Program, provided financial assistance to 12 private building owners/developers to incorporate sustainable building goals into their projects
  - Increased technical assistance to private developers and began review of the building code in search of new incentives
  - Completed "SeaGreen: Greening Seattle's Affordable Housing," to promote sustainable building by City-funded low-income housing developers
  - Partnered with the Friends of Piper's Creek to develop and implement the "Living Green in Piper's Creek Watershed" project, including a series of community-based workshops on sustainable building and landscaping practices

Figure 4 - City of Seattle Projects anticipated to meet Silver LEED™

Project Name	Occupancy Date	Total Project Budget
Seattle Justice Center	Complete	$92,000,000
Seattle City Hall	06/01/03	$72,000,000
Southwest Precinct	08/07/03	$11,000,000
Key Tower Remodel	12/31/06	$33,000,000
Park 90/5 Buildings - A, B, & C	03/15/04	$31,000,000
Marion Oliver McCaw Performance Hall	06/11/03	$125,000,000
Fisher Festival Pavilion	Complete	$9,300,000
North Cascades Environmental Learning Center	07/01/03	$15,000,000
Central Library	03/09/03	$162,342,000
Cedar River Treatment Facility Ops Building	07/01/04	$76,000,000
Northgate Community Center	12/31/05	$8,200,000
Yesler Community Center	12/01/04	$6,636,000
Joint Training Facility	11/01/05	$28,000,000
Arctic Building Remodel (under re-evaluation)	2005	$9,000,000

Buying green

The City purchases about $150 million worth of goods and services a year, and spends several times that amount on public works contracts. By incorporating environmental stewardship criteria into these decisions, we reduce the impacts of our own consumption, and at the same time help accelerate the development and adoption of more environmentally intelligent products, practices, and technologies.

Through the Copernicus Program, the City strengthened its "environmentally preferable purchasing" program in 2002 and expanded the program to incorporate additional environmental and social equity criteria. In addition, the City continued its "Buy Recycled" program to encourage purchase and use of recycled products.

Highlights

- Adopted a preference for the purchase of more environmentally-friendly flat-screen computer monitors
- Incorporated environmental criteria into laptop and PDA (Personal Digital Assistant) procurement
- Continued to purchase only copy paper with at least 30 percent recycled content
- Established duplex printers and copiers as the City standard for new purchases and established duplex as the default option on all printers
- Began hydrostripping paint and laminate from damaged aluminum signs so they can be reused rather than recycled
- Adopted a strategy and priorities for reducing the use of products that contain (or create in their manufacture or disposal) persistent bioaccumulative toxic chemicals (PBTs)
- Established new contracts that are more protective of human health and the environment, including contracts for less-toxic paints and cleaning products, recycling of sealed lead-acid batteries, carpet reclamation and recycling, and environmentally-friendly asphalt products

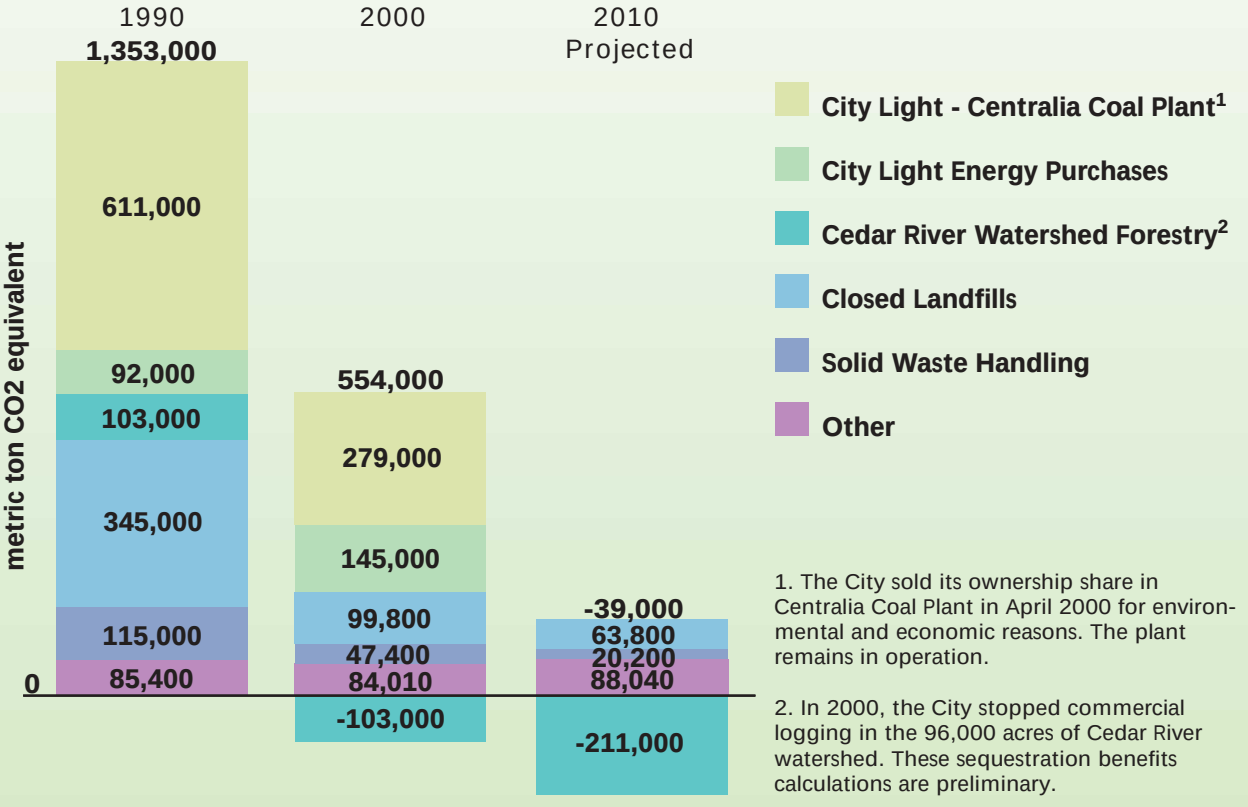
Reducing greenhouse gas emissions

The City's long-standing commitment to climate protection took a quantum leap on Earth Day 2000, when the Mayor and City Council adopted a goal of meeting current and future demand for electrical energy with no net emissions of greenhouse gases such as carbon dioxide. Subsequently, the City expanded on that initiative and committed to reduce the City's remaining greenhouse gas emissions to at least seven percent below 1990 levels — the target established for, but rejected by, the United States in the Kyoto Protocol.

Highlights

- Invested in renewable power by purchasing one of the largest wind power contracts of any utility in the country — 100 megawatts from the Stateline Wind Project on the Oregon-Washington border
- Purchased the first "carbon offset" project, aimed at increasing the production and use of blended cement, to help the City meet its goal of fully mitigating all greenhouse gas emissions from electricity generation and delivery
- Conducted an inventory of greenhouse gas emissions associated with City operations, including projections of 2010 levels (See Figure 5)
- Helped initiate, develop, and fund development of a regional global warming action plan by the Puget Sound Clean Air Agency

Figure 5 – Major Sources of GHG Emissions from City Government and Utility Operations



1. The City sold its ownership share in Centralia Coal Plant in April 2000 for environmental and economic reasons. The plant remains in operation.

2. In 2000, the City stopped commercial logging in the 96,000 acres of Cedar River watershed. These sequestration benefits calculations are preliminary.

Source - "Inventory and Report: Seattle's Greenhouse Gas Emissions", OSE, updated January 2003"

Implementing environmental management systems (EMS)

In the late 1990s, the City developed an environmental management system (EMS) to ensure a systematic and integrated approach to protecting Seattle's distinctive urban environmental quality and livability and to guide the continuous improvement of the City's environmental performance. In 2002, the City launched an interdepartmental effort to revise the EMS, integrating Mayor Nickels' Environmental Action Agenda.

The Citywide EMS established as a target that the City's five largest and most environmentally influential departments — Public Utilities, City Light, Department of Parks & Recreation, Department of Transportation, and Department of Fleets & Facilities — develop their own environmental management systems by 2002. While the City did not meet the target, departments are making progress. Environmental management systems are in development at three of the five large departments: Public Utilities, Parks & Recreation, and Department of Transportation. The Department of Transportation completed its EMS framework in July 2002. While City Light has some EMS components in place, they have yet to develop a systematic framework. The Fleets & Facilities Department has not yet initiated its process.

Complying with environmental regulations

Target·Results

When it comes to compliance with environmental regulations, the City's target is "zero tolerance": no violations, no fines, and no environmental releases. As Figure 6 shows, 2002 results are mixed. The City received one regulatory violation and an associated fine of $8,000, for failing to correct a dry-weather combined sewer overflow sufficiently quickly. A large percentage (35 to 100 percent depending on the year) of the incidents of self-reported non-compliance (typically permit condition exceedances) are dry-weather overflows. Dry-weather overflows decreased notably between 2000 and 2002 due to an improved monitoring and maintenance program. Other releases to the environment increased from one in 2001 to seven in 2002. The majority of these releases involved small quantities of hydraulic or mineral oil spills that were contained and cleaned up.

Figure 6 – Regulatory Indicators By Department 2001-2002

	1998	1999	2000	2001	2002
Regulatory Violations	1	10	3	2	1
Self-Reported Non-Compliance	10	14	69	41	3
Releases to the Environment	1	8	11	1	7
Fines and Mitigation	$2,000	$200,700	0	0	$8,000

*FFD data for 2001 - 2002 not available

Source: City Light, Public Utilities, Seattle Center, Parks & Recreation Department

Looking Ahead: 2003 and Beyond

- Implement computerized irrigation systems at all remaining irrigated park facilities for a total of 42 facilities
- Implement the Clean Green Fleet Action Plan:
  - Establish clear goals and targets, identify next steps
  - Evaluate the increased use of biodiesel in City vehicles
  - Launch no-idling program to save fuel and money, and reduce emissions
  - Participate in Climate Solutions' Clean Car Initiative
- Create a methodology for evaluating and monitoring benefits of sustainable buildings and identify next projects
- Implement a Neighborhood Power Project in Ballard
- Implement Green Power solar projects at sites including Washington Middle and Ballard High schools, Carkeek Park Environmental Education Center, Bradner Gardens Park, and Woodland Park Zoo
- Issued a "request for proposals" for 772,000 tons of carbon mitigation to meet the "climate-neutral electricity" target
- Develop and implement the City's Climate Protection Action Plan, including a citywide greenhouse gas emissions reduction target and strategy
- Participate actively in developing a regional Climate Protection Action Plan
- Implement the strategy adopted in early 2003 of reducing the use of products that contain persistent bio-accumulative toxins (PBTs) such as mercury and dioxins, including purchasing copper napthanate-treated utility poles instead of pentachlorophenol-treated poles
- Develop targets and criteria for environmentally responsible purchasing in 10 commodity areas, including office equipment, furniture, and building materials
- Begin efforts to accelerate the adoption of sustainable practices by Seattle-area businesses, and for characterizing and cultivating Seattle's "sustainable industries" sector
- Participate in a public-private partnership to create a sustainable design resource center
- Continue EMS development at Seattle Public Utilities, Seattle Department of Transportation, and Seattle Department of Parks & Recreation. Launch similar efforts at Seattle City Light and the Fleets & Facilities Department
- Recommit to the overall 60 percent recycling goal established in 1988 with a set of programs focused on the commercial sector, where recycling rates have dropped

What are we trying to accomplish?

A key — perhaps the key — to a more sustainable Puget Sound region is to channel the increasing numbers of people, jobs, and households into already urbanized areas and away from rural areas, farms and forestlands, and other green spaces. For this growth management strategy to succeed, we must keep our urban environments clean, attractive and livable. The goal of the Healthy Urban Environments component of the Mayor's Environmental Action Agenda is twofold: protect what's left of Seattle's natural systems, including the urban forest, creeks and watersheds, green spaces, and wildlife habitat; and look for opportunities to restore these natural systems as neighborhood plans are implemented, urban infrastructure is updated, buildings are erected or remodeled, and large areas of the city are redeveloped.

How are we doing?

Preserving sufficient and accessible open space

Target·Results

As parts of Seattle become more densely populated, ready access to quality open spaces becomes both more important and more difficult to preserve. The City's target is to provide at least one acre of "breathing room open space" for every 100 residents. As Figure 7 illustrates, the City is achieving this target, though keeping pace with population growth is a constant challenge.

Highlights

- Assessed the gaps in Seattle's open space network to guide acquisition efforts toward the greatest need for "breathing room" in highly developed and densely populated neighborhoods
- Acquired a total of 13 additional acres of land, including several parcels for parks in neighborhoods with below-average open space, such as Fremont, Northgate, and the Central District
- Designated funding for acquisitions in three urban centers currently deficient in open space: University District, Denny Triangle, and Pioneer Square/ International District

Figure 7: Acres of Open Space Per 100 Residents, 2001-2002

Year	Population	Acres of "breathing room" open space	Acres per 100 people
2001	563,400	5,850	1.04
2002	570,800	5,863	1.03

Source: Department of Design Construction & Land Use Planning Group/Parks Department Planning Development Group

Sustaining our urban forest

The condition of the urban forest is a key indicator of sustainability for a place that is nicknamed the Emerald City. The value of our urban forest goes way beyond aesthetics; it includes "ecosystem services" such as absorbing air and noise pollution, reducing flooding and water pollution by providing natural filtration of rain water, and storing carbon dioxide that would otherwise contribute to global warming. We do not yet have clear targets for the protection and restoration of Seattle's urban forest, but in 2002 the City initiated development of the Urban Forest Management Plan which will include a robust inventory of the existing tree canopy, clear goals and targets for urban forest quantity and quality, and an action plan for achieving those targets over time.

Highlights

- Involved 53,000 volunteer hours (a record) in the restoration of nearly 10 acres of urban forest (This fell short of the City's goal of 12 acres)
- Increased urban forest preventive maintenance program in parks by 50 percent
- Distributed 2,000 new street trees to the community and provide training on proper planting and watering
- Dedicated four more heritage trees (which get special protection under the City's Tree Protection Ordinance), bringing the total number in Seattle to 20
- Implemented an emergency program to help stop the spread of Dutch Elm Disease

Reducing City use of pesticides

Target·Results

In 2000, the City established an aggressive goal to reduce its overall use of pesticides by 30 percent by the end of 2002. As Figure 8 illustrates, we have nearly achieved that target for pesticide use on all City property except for golf courses. However, Figure 9 shows that when we include pesticide use on golf courses — which constitutes just over 60 percent of total City use— pesticide use reduction is at 17 percent. While this is an impressive accomplishment, it is below the target, and pesticide use between 2000 and 2002 has increased.

Highlights

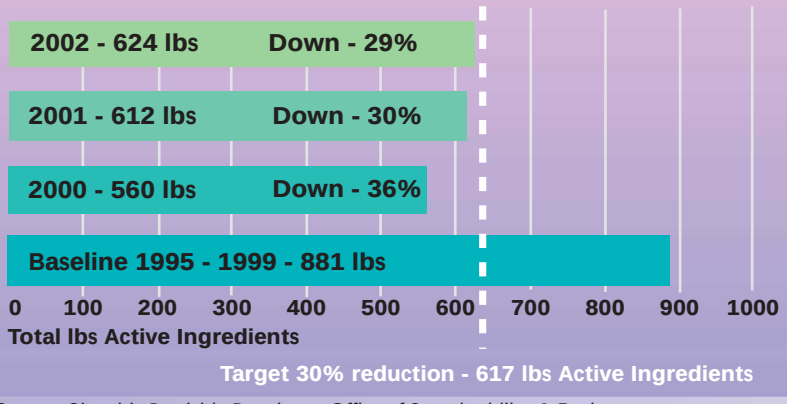
- Developed and began implementing environmental stewardship guidelines and integrated pest management (IPM) plans for City-owned golf courses
- Created IPM working groups to share information and ideas, and explore opportunities for further pesticide use reduction

Protecting and restoring our urban creeks and salmon habitat

Target·Results

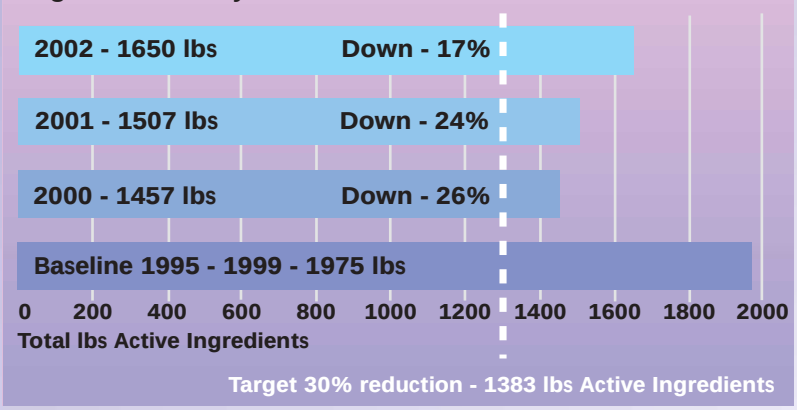
In 2002, the City established a new measure and a target for the overall health of our urban creeks: increasing numbers of juvenile salmon migrating out of Seattle's fish-bearing creeks. Figure 10 features two-year daily average baseline data for out-migrating juvenile coho and cutthroat at two of these creeks — Thornton and Longfellow. While the City also collects data on the number of adult salmon, salmon nests (called redds), and salmon carcasses found in Seattle creeks each year, we believe the numbers of out-migrating juvenile salmon, over time, is a better indicator of whether our creeks are becoming more or less hospitable for salmon. The City is in the process of developing a Salmon Scorecard which will report on the health of a number of factors affecting salmon. This information will be incorporated into future reports.

Figure 8 – City Annual Pesticide Use vs. Baseline (without golf)



Source: Citywide Pesticide Database, Office of Sustainability & Environment

Figure 9 – City Annual Pesticide Use vs. Baseline



Source: Citywide Pesticide Database, Office of Sustainability & Environment

Figure 10 – 2001-2002 Daily Average of Selected Out-Migrating Juvenile Salmon

	Coho	Cutthroat
Longfellow Creek	<1	0
Thornton Creek	7	45

Source: Public Utilities, Resource Planning

Highlights

- Initiated and/or completed habitat restoration projects in the Thornton Creek, Longfellow Creek, Pipers Creek and Taylor Creek watersheds. Work included restoring nearly 7,000 feet of stream, planting thousands of native plants, removing invasive species and providing for fish passage
- Completed research on the types of habitat that are most important to juvenile chinook as they migrate through urbanized waterways, and developed an Urban Blueprint for Habitat Protection and Restoration to inform the selection and design of future projects
- Completed or helped residents complete several projects to acquire or restore habitat for chinook, including projects at Commodore Park, Seward Park, and Salmon Bay
- Revised stormwater and grading regulations to better protect chinook habitat
- Continued design and construction of more salmon-friendly natural drainage systems in the Pipers Creek and Longfellow Creek watersheds

Practicing "restorative redevelopment"

A great deal of redevelopment is either underway or imminent in Seattle, including the replacement of major pieces of urban infrastructure such as the Alaskan Way viaduct and seawall, and large-scale redevelopment of entire neighborhoods, such as South Lake Union, High Point, and the central waterfront. These projects create huge opportunities for the City, in partnership with private developers, the Port of Seattle, and other institutions, to practice "restorative redevelopment" — that is, to employ new products, approaches, and technologies that soften the edges between the natural and built environments, protect and where possible, emulate and restore natural systems, and achieve better results for both people and the environment.

Highlights

- Two natural drainage system prototypes (an alternative to pipes), Sea Street and 110th Cascade, were completed in the Pipers Creek watershed and are meeting their stormwater management goals
- Partnered with the Seattle Housing Authority to make the High Point project a model of sustainable development at the neighborhood scale
- Completed a strategy for the Center City, proposing an interconnected system of improved open spaces and streets connecting Elliott Bay and Lake Union, with a focus on water as its theme
- Initiated design for Westlake Avenue to create a sustainable urban boulevard consistent with the Denny Triangle Neighborhood Plan
- Continued to facilitate the construction of Green Streets, which provide pedestrian amenities and open space in high-density areas, including portions of Cedar, Bell, 9th, and Terry streets
- Through the Clean Seattle Initiative, organized clean-up projects in 11 neighborhoods. In 2002, these "clean sweeps," which involved numerous businesses and community groups and hundreds of volunteers, cleaned-up 30 illegal dumping sites, collected nearly 17 tons of litter, and removed 300 square feet of graffiti

Promoting environmental stewardship and environmental justice

Ultimately, healthy urban environments depend on the everyday actions of each and every person who lives, works, and plays in Seattle. Through a wide variety of programs — in schools, in parks, in community centers, and in neighborhoods — the City promotes an ethic of conservation and stewardship, and encourages and empowers people to take actions that improve environmental quality and quality of life in and around their neighborhoods.

"Environmental justice" is another key component of healthy urban environments. A variety of City programs seek to promote equal access to environmental services and amenities, and equal protection from environmental degradation that can pose risks to human health and quality of life.

The City has not yet established specific targets for environmental stewardship or environmental justice, but continued to make progress in these two areas.

Highlights

- Partnered with various public schools and nonprofit organizations to engage young people in service learning projects focused on urban environmental protection and restoration (for example, removal of invasive species from forested areas)
- Partnered with Seattle Public Schools to incorporate environmental education programs on subjects ranging from water and energy conservation to salmon and habitat protection
- Delivered environmental education and stewardship programs at 26 community centers and other park sites, reaching nearly 6,000 summer day camp participants
- Provided small grants and other support to help thousands of residents and dozens of community groups implement projects to improve environmental quality in and around their neighborhoods
- In collaboration with local community groups, conducted outreach to Seattle's refugee and immigrant communities to better understand perceptions of environmental health issues, and help the City more effectively provide services and improve communication about environmental health hazards

Looking Ahead: 2003 and Beyond

- Build a natural drainage system in 15 blocks of the Broadview neighborhood area draining to Pipers Creek
- Continue to purchase land for additional park space in historically under-served neighborhoods
- Develop and implement a strategy for further reducing pesticide use on City-owned golf courses, including clear reduction goals and specific action steps for achieving those goals
- Complete and implement the Urban Forest Management Plan, including goals for forest canopy cover for different land uses
- Continue efforts to protect and restore Seattle's lakes, rivers, creeks, estuaries, and salmon habitat
- Develop the policies and tools necessary to effectively integrate sustainable design and construction principles and practices into major infrastructure projects such as the Alaskan Way viaduct/seawall replacement, monorail, light rail, and neighborhood-scale redevelopment efforts, including South Lake Union, High Point, and the Seattle waterfront
- Partner with the Puget Sound Clean Air Agency to develop and implement a "no idling" project at Seattle drawbridges
- Include an environmental justice component in the Mayor's Race & Social Justice Adgenda

Beyond Our Borders

As part of region-wide efforts to recover chinook salmon and bull trout listed as threatened under the Endangered Species Act, the City has developed an Early Action Program (EAP) in the Skagit and Tolt watersheds, where the City has hydroelectric or water supply projects.

Under the EAP, the City purchased 115 acres of key habitat on a major tributary of the **Skagit River**. This purchase protects over one mile of critical side-channel habitat for salmonids and over 1.5 miles of mainstem habitat. To date under this program, the City has protected over 300 acres of prime fish habitat used for rearing and spawning by chinook, coho, chum, and pink salmon and steelhead trout. As a result of changes in dam operation as well as these habitat improvement projects, the 2002 Skagit River wild chum returns reached 350,000 — possibly the biggest return since 1917 — and summer/fall chinook in the Upper Skagit reached 14,000 — the largest return since 1974.

On the **Tolt River**, about 54 acres of mainstem properties have been acquired and preserved for salmon habitat. Seattle is also partnering with King County and others to restore habitat in a mile-long reach of the lowermost Tolt River that is now highly constrained by levees. By removing and rebuilding the levees away from the river channel, 80 acres will be reclaimed for active channel migration and renewed spawning and rearing habitat.

The City continues to implement the **Cedar River** Watershed Habitat Conservation Plan for the Cedar River, the primary source of Seattle's water supply. In 2002, the City completed numerous forest and stream habitat restoration projects, removal of more forest roads, and a natural rock fish ladder for salmon at the Landsburg pipeline. When the fish ladders at the Landsburg Diversion Dam open in fall of 2003, salmon will have access to a substantial amount of highly protected habitat in the watershed for the first time in a century.

Smart Mobility

What are we trying to accomplish?

Many of the biggest environmental challenges in our region are the result of motor vehicle use. Motor vehicles — cars, trucks, sport utility vehicles, and buses — are the primary source of air and water pollution in the central Puget Sound region, and a major source of water pollution, as well. About 60 percent of the region's emissions of the greenhouse gases that accelerate global warming come from tailpipes and about 70 percent of the toxic air pollution is from diesel emissions from trucks, buses, ships, and other sources. Further, traffic congestion exacerbates the environmental and health impacts of vehicle use, and harms our economy and our neighborhoods.

The goal of the Smart Mobility component of the Mayor's Environmental Action Agenda is to uncouple transportation and degradation of our distinctive environmental quality and urban livability — that is, to provide more mobility of people and freight with less hostility toward the physical, mental, environmental, and economic health of our community. The City's efforts to promote "smart mobility" fall into three broad categories: 1) growth management strategies that result in more people living closer to their jobs, services, and amenities - so they are less-dependent on car travel; 2) transportation demand management programs; and 3) major investments in transportation system improvements, such as bicycle trails and the monorail.

How are we doing?

Encouraging City employees to drive less

Target·Results

The City seeks to minimize its contribution to transportation-related pollution — and set an example for others — by encouraging City employees to carpool, take the bus, ride a bike, or walk to work. Our target is to reduce the percentage of City employees who drive alone to work by 35 percent from 1992 levels (the year the program began). As Figure 11 shows, the results are mixed. We are far exceeding the target among employees who work in the central business district (over half of all City employees), only 16 percent of whom drive alone. However, we are not reaching the target for employees working at most of the locations outside of downtown Seattle, though the percentage of City employees driving alone to these locations has declined significantly since 1992. The central business district, SPU operations center, and Charles Street are out-performing the drive-alone average of all affected sites in their geographic areas.

Highlights

- Offered FlexCar benefits (discounted membership and free hours of use) to all City employees
- Implemented a program to promote car-pooling among employees commuting to the City's Haller Lake worksite, which resulted in an 11 percent drop in the number of those employees driving alone to work

Figure 11: Commute Trip Reduction

Single-Occupant Vehicle (SOV) Use - % of all commute trips to worksite

Worksite	1992 Base Year	1995 Actual	1997 Actual	1999 Actual	2001 Actual	2003 Actual	2003 Goal
Central Business District	43%	22%	22%	21%	17%	16%	28%
Seattle City Light South Service Center	88%	67%	64%	63%	68%	64%	57%
Seattle City Light North Service Center	89%	79%	69%	77%	72%	74%	58%
Charles Street	88%	71%	70%	69%	53%	60%	57%
Haller Lake	85%	73%	63%	73%	73%	62%	55%
Seattle Public Utilities Field Operations/Water	88%	72%	57%	66%	63%	64%	57%
Seattle Center	77%	77%	65%	66%	59%	55%	50%
Parks Department	New site located at 4200 West Marginal Way					55%	75%

Data source: Seattle Department of Transportation, Commute Trip Reduction

Reducing car trips and miles traveled

Target·Results

Transportation demand management programs promote more efficient use of transportation options and seek to instill a conservation ethic into those choices. The City is monitoring our progress in this area by tracking the number of vehicle trips and miles traveled reduced by the "Way to Go, Seattle" transportation demand management programs; our target is to increase those numbers over time. In 2000-2002, these programs resulted in 150,000 fewer car trips and 1,522,000 fewer miles driven in Seattle neighborhoods, for about $630,000 (roughly the cost to build one half-mile of arterial street). These figures provide a baseline for measuring progress in the coming years.

Highlights

- The "Way to Go, Seattle" initiative developed and operated six major programs such as CarSmart Community Grants, demand management programs for neighborhood business districts, education programs, and the "One Less Car" study
- CarSmart grants, which empower residents to carry out their own ideas to reduce traffic, funded over 30 projects totaling $100,000
- The "One Less Car" study, where over 60 households gave up their second or only car for six to nine weeks, provided vital data on how and why the families reduced their driving

Reducing travel times by optimizing traffic signals

Target·Results

Seattle has nearly 1,000 intersections with traffic signals, the majority of which are in major transportation corridors. We are working to make the most efficient use of our existing street system by improving traffic signal timing and maintenance and upgrading equipment. These improvements, typically referred to as optimizing, help us manage Seattle's increasing number of cars, buses, pedestrians, and bicyclists and improve traffic flow. Optimizing signals is an effective tool for reducing delay and fuel consumption, with corresponding improvements in air quality. Numerous studies performed in this region and nationally show travel signal optimization reduces travel time from five percent to 51 percent. Traffic flow improvement was measured in four Seattle corridors, where flow improved between 15 and 28 percent.

Highlights

- In 2001 a total of 89 signals were optimized in 10 corridors
- In 2002 a total of 114 signals were optimized in four corridors and the University area

Improving transportation choices

The City invests a great deal of time and money in significant improvements to the local and regional transportation system, seeking to increase the menu of safe, clean, convenient, affordable, and environmentally-friendly transportation choices available to residents and commuters.

Highlights

- Made cycling a more viable transportation choice by distributing over 12,000 Seattle Bicycle Maps, installing 108 bike racks, creating a bike lane on Union Street, improving a critical east-west connection at the I-5 overpass west of North 117th Street, and adjusting signal loop detectors at problem intersections to detect waiting bicycles
- Made pedestrian improvements at more than 40 locations including adding and repainting crosswalks, installing curb bulbs and curb ramps, and adding and rehabilitating sidewalks to improve accessibility and safety
- Worked to establish Bus Rapid Transit on Aurora Avenue North by increasing service and improving reliability
- Actively supported both Sound Transit's light rail system and the Seattle Popular Monorail Project
- Initiated analysis and discussion of an electric street car connecting South Lake Union to the multi-modal transportation center in downtown Seattle at Westlake Mall

Looking Ahead: 2003 and Beyond

- Continue to support and invest in transportation system improvements, including light rail, the monorail, the South Lake Union street car, the Bus Rapid Transit (BRT) on Aurora Avenue North, and facilities such as bicycle trails and sidewalks that encourage biking and walking. In particular, work to extend the Burke-Gilman Trail through Ballard to Golden Gardens Park
- Offer free bus tickets to City employees for work-related meetings during weekdays
- Develop and implement an educational and promotional program to increase ride-sharing by City employees who work outside of the central business district
- Continue transportation demand management programs
- Seek funding to plan and develop a "Transportation Conservation" campaign to encourage citizens to increase their mobility while reducing their driving. The campaign will build on lessons learned from the "Way to Go, Seattle" programs and will be modeled after Seattle's successful recycling and energy and water conservation campaigns
- Optimize 150 signals in 12 corridors in 2003, including 35th Avenue SW, Montlake Boulevard NE, and Mercer Street

Where Do We Go From Here?

Four broad conclusions emerge from this report:

- First, the City is making significant, measurable progress in its efforts to improve its environmental performance and environmental quality in and around Seattle;
- Second, difficult challenges remain, many of them associated with the growing numbers of people, households, and motor vehicles in the Seattle area;
- Third, City government's contributions toward Seattle's long-term economic, environmental, and social health are necessary but not sufficient. Sustainability is a team effort. Every individual and institution in the public, private, and nonprofit sectors of this community plays a vital role. Effective partnerships within and across these sectors offer the most promising pathways to success;
- Fourth, the pace of progress is driven in large part by the speed with which new ideas, information, technologies, and "best practices" are transferred among organizations, sectors, and places. Along those lines, in late 2002 Mayor Nickels directed City departments to develop and implement a strategy for accelerating the transfer and adoption of environmental "best practices" by Seattle-area businesses.

Finally, while extremely useful in illuminating both successes and remaining challenges, this report is very much a work-in-progress. Measuring progress in a robust and credible way is as difficult as it is necessary. In some cases, we have sufficient data to answer the "how are we doing" question with some confidence. However in other places, we do not yet have meaningful measures in place, or we are just now beginning to collect the baseline information needed to monitor future progress.

Where do we go from here? In 2003, the City will begin implementing each of the next steps summarized in the "looking ahead" sections of this report; in fact, many of those actions already are underway. The Office of Sustainability & Environment (OSE) will brief all key City departments — including senior management and all relevant business units — on the findings of this report, so that those findings can be incorporated into future program and project management, priority-setting, and resource allocation by the City. In addition, OSE will continue to monitor and report annually on the City's environmental goals and initiatives, and to refine and improve the yardsticks by which we measure our progress.

The outside looking in...

The City's environmental management and sustainability initiatives attracted a great deal of regional, national, and international attention in 2002, including several awards:

- The City was one of six organizations, and the only government agency, to receive a Governor's Award for Pollution Prevention and Sustainable Practices for demonstrating the benefits of reducing the use of toxic materials, preventing waste, reducing emissions, and conserving natural resources
- The City received a Clean Air Excellence Award from the USEPA for participation in the regional Diesel Solutions Program, which dramatically reduces toxic emissions from City diesel vehicles through switching to a cleaner fuel and installing advanced pollution control equipment
- The City was a finalist in a worldwide recognition program called the Stockholm Partnerships for Sustainable Cities Awards. Seattle was one of 60 finalists chosen from 228 projects by an international jury for "demonstrating high levels of local impact, innovation, and potential for transferability"
- The City was a semi-finalist for Harvard University's prestigious "Innovations in American Government" Awards, which "highlights exemplary models of government's innovative performance." The City's sustainability initiative was one of only 100 semifinalists chosen from about 1,000 projects

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